

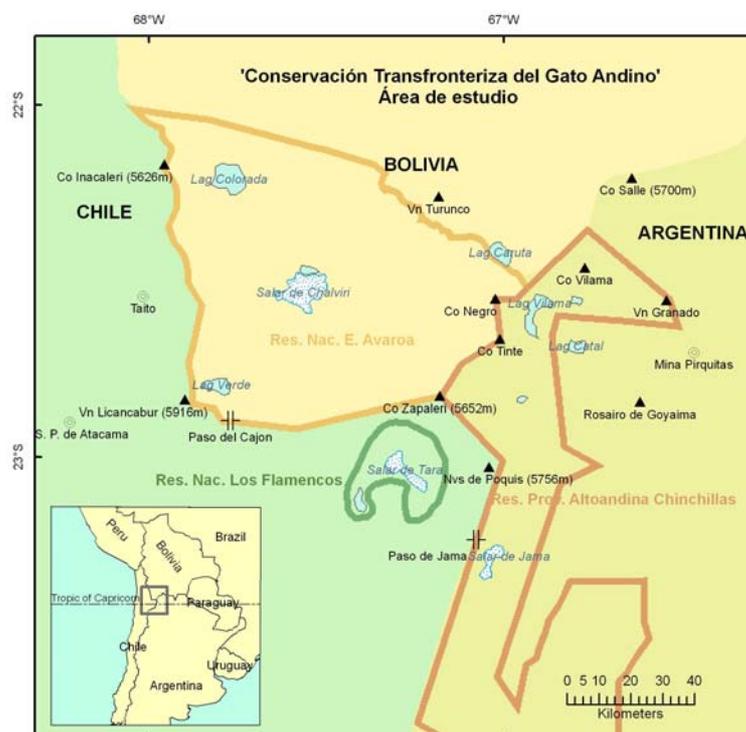
# Darwin Initiative Annual Report

## Darwin Project Information

Project Ref Number	14-028
Project Title	Conservation of Puna's Andean cats across national borders
Country(ies)	Argentina, Bolivia and Chile
UK Contract Holder Institution	Wildlife Conservation Research Unit (WildCRU), University of Oxford
Host country Partner Institution(s)	Andean Cat Alliance (AGA); Universidad Nacional del Sur, Museo de Ciencias Naturales de Salta, Universidad Nacional de Salta (Argentina); Colección Boliviana de Fauna (Bolivia); Fundación Biodiversitas, Universidad de Chile, Universidad Mayor, Universidad Católica (Chile); Wildlife Conservation Network (USA)
Darwin Grant Value	£159,186
Start/End dates of Project	01 October 2005 – 30 September 2008
Reporting period and annual report number	1 May 2006 - 30 Apr 2008, Annual report # 3
Project Leader Name	Claudio Sillero-Zubiri
Project website	<a href="http://www.wildcru.org/andeanecat">www.wildcru.org/andeanecat</a>
Author(s), date	C. Sillero-Zubiri, M. Lucherini, M.J. Merino, L. Villalba, A. Iriarte & J. Marino; 30 April 2008

## 1. Project Background

Endemic to the Central High Andes, the Andean cat (*Oreailurus jacobita*) is the rarest South American felid, and one of the most endangered wild cats in the world. This specialized predator depends upon a community of high altitude rodents to survive and we use it as a flagship species for the conservation of Puna's endemic-rich biodiversity. Habitat loss, fragmentation, hunting and competition with other carnivores are potential threats, but the causes of the Andean cat's rarity and the factors affecting its conservation status are still poorly understood. This project is centred on the region around the triple frontier between Argentina, Bolivia and Chile, and focuses on existing adjacent conservation areas (map). The project supports the work of local conservationists and educators united under the Andean Cat Alliance aiming to fulfil the objectives of the Andean Cat Action Plan, mainly through research to better understand the ecology and distribution of carnivores and their prey; increasing the capacity of scientists, protected area staff and educators; and raising awareness of the importance of biodiversity among those living within the areas, particularly school children.



## 2. Project Partnerships

During the last year the cooperation favoured by this project has gone beyond that between WildCRU at Oxford and its South American partners and now fully involves the whole of the Andean Cat Alliance (AGA [www.gatoandino.org](http://www.gatoandino.org)), the organization likely to benefit most from the success of this initiative. Both UK project members visited the project area twice for fieldwork and training. They participated in the AGA biannual meeting held in April 2008 in Arequipa, Peru, with the support of project partners Wildlife Conservation Network (WCN). Two project members visited Oxford to work with WildCRU colleagues in data analyses and writing: Magdalena Bennett (GIS analyst from Chile; 4 weeks) and Mauro Lucherini (Project Coordinator, Argentina; 6 weeks). These activities promoted the development of new collaborations and the strengthening of old ones. We took particular advantage of the opportunity offered by the AGA meeting to share experiences and lessons learnt with the Darwin project. The benefits and achievements of our multi-team and cross-border approach have attracted great interest and promoted other multinational initiatives. For example a study of population genetics of small cats in the High Andes, lead by Daniel Cossíos, AGA Peru/Montreal University, to which our project contributed over 500 samples; the development and implementation of common tools for environmental education activities and their evaluation; the analysis of High Andes carnivores activity patterns, launched by the Argentine team. Other similar collaborations are planned for the coming years.

To progress towards a more strict integration of AGA and the agencies legally responsible for the implementation of conservation policies, our Team held six formal meetings with various governmental representatives of the three countries and carried out the second tri-national workshop (December, Jujuy, Argentina) for staff from the Protected Areas adjacent to the triple frontier. The workshop included a representative of the High Andes Flamingo Conservation Group (GCFA), which operates across national frontiers in the same area as the Darwin project protecting wetlands and populations of three flamingo species. The workshop set up the basis for the development of a framework for common conservation strategy for the High Andes biodiversity across borders.

The solid academic support provided by UK staff and local universities has further increased participation and training of students by the Darwin Project from different institutions, namely: Universidad Nacional del Sur, Universidad Nacional de Salta, CONICET (Argentina); Universidad Loyola, Universidad Mayor de San Andrés, Universidad Mayor de San Simón, Universidad Tecnológica Boliviana (Bolivia); Universidad Mayor, Universidad de Chile, Universidad Católica de Chile, CONAF (Chile).

## 3. Project progress

### 3.1 Progress in carrying out project activities

This project started in October 2005. Its first phase was mainly devoted to project planning and coordination with partner organizations, culminating on an international meeting in Chile. Some delay occurred in this early stage, chiefly due to difficulties in transferring funds to local partners. Since then, field, educational and networking activities have been implemented according to timetable. During the second year we focused on field data collection and educational activities, while data analyses were only preliminary to provide feedback and improve the effectiveness of our project. In the third year, while continuing field activities, we have increased the effort dedicated to data processing and the production of outputs.

#### **Output 1. Key conservation areas for Andean fauna identified**

During the first and second year, the project was instrumental in promoting methodological standardization for surveys and research across the study area. Many AGA members have largely adopted these methods, compiled in a *Manual of Survey Methods for High-Andes Carnivores* produced in year 2. Field campaigns continued in the third year, and included surveys led by project members in their respective countries and with the participation of students, extensive use of camera-trapping and carnivore sign searches to register species presence (totalling 60 new records of Andean cats in Argentina, 1 in Chile, 20 in Bolivia), line transects to record data on carnivore and prey habitat use (now summing up to more than 150 transects in Bolivia and 40 in Argentina), live-trapping, direct counts and sign recording of rodents in various habitats of the three countries, collection of carnivore faecal samples (total: > 420 in Bolivia, 330 in Chile, > 400 in Argentina). A study of carnivore food habits based on faecal samples is advanced in all three countries. Three seasons of intensive camera-trapping have been conducted to estimate abundance of Andean cat and Pampas cat via capture/recapture in two areas of Argentina (totalling an effort of over 3,000 trap days). We surveyed some 15 new areas, confirming the presence of Andean cats in four of them. We carried out >750 habitat sampling points as ground-truthing for a habitat model. This research is building a body of knowledge on the ecology of High Andes predators

and their prey, and contributing to an extensive database on carnivore and prey distribution. This will be a tangible legacy of our project to host countries.

We are using these data to build a habitat model to predict High Andes small cat distribution that will be the basic tool for the identification of key conservation areas. Preliminary maps of habitat suitability resulting from this model have been presented at the Society for Conservation Biology meeting (July 2007, South Africa) and the Felid Biology and Conservation Conference (September 2007, Oxford, UK), and will form part of a chapter for the new book on felids to be published by Oxford University Press in 2009 (Biology and Conservation of Wild Felids, Macdonald D.W. and Loveridge A.J. Eds.). Our results will synergise with those produced by a analysis of population genetics led by partner D. Cossíos (AGA Peru, Montreal University), which has identified reduced genetic variability and is now exploring meta-population structure.

### **Output 2. Enhancement of local community environmental awareness**

Environmental education activities continued in coordination with other AGA members. We started exploring a new strategy to increase community participation and to evaluate the effectiveness of our awareness raising approaches. The *Guide for High Andes Educators*, edited by the project's education coordinator M.J. Merino, is being used by most AGA members in environmental education in the four range countries, and has also been adopted by a number of rural schoolteachers and educators from at least 25 localities in the study region, including staff from APN (Argentine National Park Agency) and CONAF (Chile Protected Area Agency). It also became the basic reference tool for the training of local Education Officers. In addition to the education material produced in previous years, two storybooks for young children have been printed in Bolivia and Argentina.

In year 3 the education work established in the Antofagasta Region of Chile, in collaboration with CONAF, has reached four new rural schools (85 school children) and delivered four public talks. Five schoolteachers have received three weeks of training in environmental education at two villages located within the borders of the Avaroa National Park, in Bolivia. The Argentine team selected seven young villagers (mostly secondary school students) from three localities, and provided each of them with a 7-10 days training in conservation education for the Andean cat. As local *Education Officers* they have already completed eight meetings with younger children.

The second workshop of the *Network of High Andes Educators*, organized in Argentina, brought together two representatives of APN, two regional representatives of Jujuy Province's Ministry of Education, two school headteachers, five teachers, and the project's Education Officers. Since this workshop awareness-raising activities have been mainly in the hands of our Education Officers and the Network of Educators, which remain active in the schools of the region. Finally, to increase local people participation, we have provided theoretical and practical training on camera trapping techniques to six villagers from three localities of the Vilama region of Argentina and offered them to participate in our field survey as *Wildlife Monitors*. They have proved to be able to operate the equipment and have already obtained photo-trap pictures of carnivores, including the Andean cat.

### **Output 3. Training of future local conservation biologists**

Data collection and analysis of all post-graduate students' projects are in progress and going according to schedule. C. Chirgwin (MSc student, Universidad Mayor, Chile) is working on prey population ecology and P. Alvarez on small cat ecology (MSc student, Universidad Mayor). J. Reppucci (PhD student, Universidad Nacional del Sur, Argentina) works on Andean cat population abundance and ecology using carnivore signs and intensive camera-trapping. M. Viscarra has completed her graduation thesis in Biology on distribution, abundance and diet of High Andes carnivores in four habitats (Universidad Mayor de San Andrés, Bolivia), and two other Bolivian students have finalized data collection and are doing laboratory and data analyses for their graduation theses at Universidad Mayor de San Simón and Universidad Mayor de San Andrés. The methodological manual has been instrumental in training these students as well as staff from protected areas helping them survey High Andes carnivores. Our project continues to provide opportunities for undergraduate training, with a total of 39 students benefiting so far (10 in year 3).

Thanks to the Darwin Initiative grant and our partners WCN we were able to leverage two scholarships from the Sidney Byers Foundation in California for J. Reppucci (who will receive hands-on training on snow leopard camera trapping with Snow Leopard Conservancy in Mongolia and occupancy theory as applied to camera trapping at Fish And Wildlife Service, USA) and M. Bennett (for a MSC in conservation in Spain).

### **Output 4. Capacity for biodiversity conservation increased through trans-frontier cooperation between protected area staff and biologists in three countries**

In the last year we have given more emphasis to our efforts for building long-term trans-frontier cooperation between the governmental institutions in charge of protected areas and NGOs working in the conservation of High Andes biodiversity. The main activity to fulfil this goal consisted of a 3-day workshop that took place last December in San Salvador de Jujuy, Argentina, organized by P. Perovic of Museo de Salta. This meeting was attended by staff from Avaroa National Park (Bolivia), CONAF and Los Flamencos NP (Chile), APN and Jujuy Province Direccion de Medio Ambiente in Argentina, as well as the High Andes Flamingo Conservation Group (GCFA), and was successful in identifying common interests and prepare the ground for a cross-border cooperation agreement to be submitted for signature by PA authorities in all three countries. The Director of the Regional NW office of the APN has confirmed his interest in cooperating with the project in a proposal to upgrade the status of Las Chinchillas Provincial Reserve, and has asked our support for the mapping and compilation of a management plan. In April 2008 the project leader followed up this preliminary agreement and met with government authorities in Argentina, while the Chilean team discussed details with CONAF staff.

Using the two manuals we produced, we continue to provide training to protected area staff. Currently Avaroa National Park rangers are participating in all field activities in Bolivia, while Chilean park scouts are acting as education officers. CONAF authorities help providing accommodation, personnel and other logistical support to project staff and students in Chile. In Argentina the synergy with protected area authorities has been given a boost thanks to a memorandum of understanding signed between project member P. Perovic and APN.

Following the training workshop to survey carnivores using sniffer dogs we carried out in year 2, we have been testing the effectiveness of the dog at detecting Andean cat faeces. A preliminary evaluation indicated that the dog handler team was effective, but the dog failed a recent field proficiency test. As a result we are considering retraining this dog for scat discrimination in laboratory conditions. Additionally we are planning to train an additional dog in this method, which could potentially revolutionize the methods for the detection and specific identification of Andean cat faecal samples. This work, however, is conditional to sourcing additional funding and is likely to take place beyond the duration of the current project.

#### **Output 5. Guidelines for good practice for conservation of the Puna disseminated more widely**

The last year witnessed a marked increase in the dissemination activities of our project, both in host countries and internationally. We distributed as widely as possible the two training manuals we produced. We use our six monthly project newsletter (on its sixth issue) to debate and communicate specific topics. Four papers have been published or accepted in peer-reviewed journals (Molecular Ecology, Mountain Research and Development, Tópicos en Educación Ambiental, and Mammalia), and four more have been submitted. Furthermore, nine scientific presentations were delivered to international and national conferences in the region (Society of Conservation Biology, Port Elizabeth, South Africa; Biology and Conservation of Wild Felids Conference, Oxford, UK; 3rd Argentina-Chile Bi-national Meeting of Ecology, La Serena, Chile; 3rd Bolivian Mammal Conference, Santa Cruz de la Sierra, Bolivia; 6th Wildlife Conservation Network Expo, San Francisco, USA) that were attended by different project members. All publications are available online or from authors upon request. Regionally, we have made an extra effort to increase the number of talks open to the general public (ten, in the three countries) and our presence in local and national media.

### **3.2 Progress towards Project Outputs**

The increasing quantity and quality of the different types of outputs and the progress made during last year indicate that it is very likely that the project will achieve most, if not all, of our goals. The high quality, standardized data on High Andes carnivore and prey ecology provided by surveys and research activities across countries are now being analysed and included in conference presentations and scientific papers. UK staff is constantly updating the first version of the habitat suitability map for High Andes carnivores to incorporate the increasing flow of field data, and produce a more reliable analysis of spatial distribution of core conservation areas and corridors. In the next few months this map will be used as the bases for an Andean cat monitoring plan for the study region.

The formal evaluation of our educational activities and target-specific materials, based on the comparison between pre-tests and post-tests (recently submitted to a peer-reviewed journal), lends support to the appropriateness of our strategy to increase awareness of the importance of High Andes natural resources among local communities. Additionally, our manuals have been largely adopted as useful training tools and have contributed towards the production of standardized data by students, volunteers, and PA staff.

We have completed two of the three PA staff training workshops planned, and we have strong indications of the good levels of synergy that our local partners have reached with park rangers and personnel,

indicating that adequate training is being provided. Furthermore, the workshops gathered PA authorities and staff, developing a good working relationship with project personnel and among themselves, and setting the bases for agreeing on a multinational collaboration framework we have scheduled for the end of this project.

A minor problem we have faced is related to the research undertaken by our students. Although one of them has already been completed and the others are well advanced, the time delay in DNA identification of faecal samples and differences in academic procedures proved to be bottlenecks in progress towards this output. As a result, it remains uncertain whether we will achieve the submission of the target number of these before the end of the project.

### 3.3 Standard Output Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
1A	PhD student camera-trapping study	prelim work	1 Arg	ongoing		1
2	Masters on carnivore and prey ecology		2 Chi	ongoing		2
3	Honours projects (Licenciatura)		2 Bol	1 ongoing 1 new Bol		3
4A	Undergraduate students: work experience and field techniques training	4 Arg 1 Chi	4 Arg 2 Bol 18 Chi	5 Arg 4 Bol 4 Chi		42
4B	Training weeks during the above activities	12 Arg 7 Chi	36 Arg 4 Bol 18 Chi	24 Arg 8 Bol 15 Chi		124 weeks
4C	Postgraduate students: work experience; field training	3 Arg 1 Chi	1 Arg 1 Bol 1 Chi	1 Chi		8
4D	Training weeks during the above activities	18 Arg 4 Chi	8 Arg 4 Bol 4 Chi	5 Chi		43 weeks
5	Practical and theoretical training in Environmental Education			1 Arg		1
6A	1. Training in formal/no formal Environmental Education to local villagers/teachers  2. Training in field techniques to local villagers/rangers			7 Arg 5 Bol  6 Arg 3 Bol		12  9
6B	Training weeks during the above activities			1. 12 2. 18		30 weeks
7	Training manual for educators  Storybooks for High Andes children		1 200 copies	2 400 copies		3
8	UK staff visits and fieldwork	3 Leader 2 Ecologist	3 Leader 2 Ecologist	3 Leader 2 Ecologist		15
10	Manual of Survey Methods for High-Andes Carnivores		1 200 copies			1
11A	Papers published	0	2	4		6

11B	Papers submitted	1	1	4		6
12A	Computer based carnivore database			1		1
14A	Workshops Public talks	1 Ch 1 Arg	1 Arg 1 Bol	2 Arg  1 Arg 5 Bol 4 Chi		6  10
14B	Presentations in international/regional conferences	1	4	9 (2 Chi, 2 UK, 2 Bol [1USA], 3 Arg)		14
15A	Article in national broadsheet	1	1	4 (3 Chi, 1Arg)		6
15B	Local press release	2	1	0		3
15D	Press release to websites in UK	1	1	1		3
16A	Project newsletter	2	2	2		6
16 B/C	Hard copy, and e-circulated through various websites	3 websites 2 e-lists	3 websites 2 e-lists 100 copies	3 websites 2 e-lists 50 copies		
17A	AGA electronic mailing list; Network of High Andes Educators	1	1	1		3
18C	Local TV programme		1(Jujuy)	1 (Jujuy)		2
19B	UK national radio features					
19C	Local radio features			2		2
20	Computer; technical books	£100	£800			£900
20	4x4 vehicle (additional funding by WCN)	£10,000				£10,000
23	Funds raised to complement PhD field work Counterpart funding to project partners (WCN) Training Scholarships from Sidney Byers Foundation	£31,000	£2,000  £28,000	£25,700  £8,500	£5,000	£100,200

**Table 2      Publications**

Type *	Detail	Publishers	Available from	Cost £
Manual *	Guidelines for High Andes Educators. M.J. Merino, editor. (2006)	GECEM, UNS Bahía Blanca, Argentina		Nil (free donation)
Manual *	Manual of Survey Methods for High-Andes Carnivores. Cossios, D. et al (2007).	AGA, WildCRU Buenos Aires, Argentina	Hardcopy: <a href="http://www.wildcru.org/andeanecat.htm">www.wildcru.org/andeanecat.htm</a> Digital copy: <a href="http://www.wildcru.org/andeanecat.htm">www.wildcru.org/andeanecat.htm</a>	£10  Free
Scientific publication	Planning a common educational strategy for Andean cat conservation. Lucherini M. y Merino M.J. (2006).	<i>Oryx</i> 40: 137-138 (Note in Conservation News)		Subscription
Scientific publication	Diet of the Andean mountain cat, colocolo, and culpeo in high-altitude deserts of Argentina. Walker S. et al. (2007)	<i>Journal of Mammalogy</i> 88: 519-525. American Society of Mammalogy, USA	<a href="http://www.mammalsociety.org">www.mammalsociety.org</a>	Subscription
Scientific publication	Human-carnivore conflicts in the high-altitude Andes of Argentina. Lucherini M. & Merino M.J. (2008)	<i>Mountain Research and Development</i> 28: 81-85. Centre for Development and Environment, Switzerland	<a href="http://www.mrd-journal.org">www.mrd-journal.org</a>	Subscription
Scientific publication	Ecological and biogeographic inferences on two sympatric and enigmatic Andean cat species using genetic identification of fecal samples. Napolitano C. et al. (2008)	<i>Molecular Ecology</i> 17: 678-690.	<a href="http://www.blackwellpublishing.com">www.blackwellpublishing.com</a>	Subscription
Scientific publication	How rare is the rare Andean cat? Lucherini M. et al. (in press)	<i>Mammalia</i> 2. Walter de Gruyter GmbH und Co. KG, Germany	<a href="http://www.degruyter.com/journals/mammalia">www.degruyter.com/journals/mammalia</a>	Subscription
Scientific publication	"Programa EduGat": el componente educativo de un proyecto para la conservación del gato andino. Merino M.J. et al. (in press)	<i>Tópicos en Educación Ambiental</i> 7. Universidad de Guadalajara, Mexico		Subscription
Chapter in scientific book	Highland cats: ecology and conservation of the rare and elusive Andean cat. Marino J. et al. (in press)	Biology and Conservation of Wild Felids (Macdonald D.W. & Loveridge A.J. Eds.). Oxford University Press, UK		Not yet available
Storybook	La historia de Almita una gata andina. Cossíos D. & Merino M.J. (2008)	GECEM, UNS Bahía Blanca, Argentina		Nil (free donation)
Divulgarion publication	El gato sagrado de los Andes. (2008)	<i>Muy Interesante</i> May: 8-12. (Chile)		

### **3.4 Progress towards the project purpose and outcomes**

The regular presence of partners' teams in the field in the three countries and their increased education and community participation activities have raised the profile both of the project and that of the Andean cat as an important component of the natural and cultural landscape of the High Andes. There is also an increased interest shown in local and regional media for Andean cat conservation. This high profile is helping us to establish Andean cats as a flagship for High Andes conservation. More people living in the High Andes, and those in towns and cities nearby, are now aware of the existence of Andean cats and the need to protect the High Andes diversity and natural resources. Although this effect is notoriously difficult to quantify, our assessment of the impact of our educational activities has showed a marked change in students' attitudes and knowledge. The number of university students who are receiving training and the standardization in field and educational techniques we have reached are good indication that the project will leave an important legacy in host countries. The consorted effort to study carnivores and their habitats is building an unprecedented database from where a new level of understanding of the ecology of High Andes carnivores can be achieved, particularly for Andean cats.

The very positive relationships with PA authorities is already showing some direct benefits for long-term conservation of High Andes wildlife, such as the plans to upgrade the status of Argentina's Chinchillas Reserve and sign a tri-national framework for cooperation.

More generally, the project's early successes, its high degree of coordination, and network-based approach are raising interest among other AGA members, who communally are the project's most important partner. There are strong indications that they are willing to follow the open, collaborative, multiteam, multinational approach we propose.

The main drawback we are facing is related to the most innovative (and thus most challenging) methodological approach we have attempted. We have been developing the use of sniffer dogs as a technique for producing large and inexpensive records of Andean cats. Although we plan to continue with our plans, the first dog we had selected and trained has failed its field proficiency test, forcing us to postpone the schedule of this output, possibly beyond the duration of the Darwin project. We are currently looking at retraining the dog as a laboratory dog, and source out a new field dog, subject of raising the additional funds required.

### **3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits**

School children living in areas within Andean cat range are now more aware of the need to protect biodiversity and their attitude towards carnivores is becoming more positive. Our informal contacts with local adults are indicating that, through influencing parent's attitude and through peer pressure, this increased awareness should reduce direct pressure on Andean cats and other wildlife. Last year our decision to train not only rural teachers but also local villagers and rangers and involve them in project educational and field activities has increased the sympathy of local communities and their leaders towards an enhancement of biodiversity conservation in their areas. Furthermore, these new initiatives are setting an example that natural resources can provide sustainable sources of income.

In Argentina we are working jointly with APN and Jujuy's Secretaria de Medio Ambiente to upgrade the status of Reserva Altoandina de las Chinchillas. In Chile our partners are assisting CONAF with their plans to extend the Reserva Nacional Los Flamencos to include the High Andes habitats of Tatio as a new area of the Reserve. A tangible effect of this project's advocacy efforts, and one that will affect conservation policy in hosts countries and have concrete impacts on biodiversity, is that PA authorities have welcomed support to create/upgrade protected areas and our proposal of a framework agreement for cooperative cross-border monitoring and cooperation.

## **4. Monitoring, evaluation and lessons**

We are using the following indicators of achievement to monitor and evaluate progress:

- Sustained project presence in High Andes schools by environmental education staff
- Ad hoc evaluation of attitude change and increased knowledge of ecological concepts through project educational activities
- New education materials produced (storybooks, newsletters)
- Training of 21 members of local communities
- Growth of educators network through inclusion of local young villagers as project Education Officers
- 10 public talks in host countries

- 5 project reports delivered to partners and local authorities
- 4 publications in peer-reviewed journals
- 9 presentations to international/national conferences

In addition to frequent contacts via the project e-mail list, we have targeted opportunities for personal meetings with project personnel and partners during workshops or other public events. Furthermore we benefitted of collaborative data analysis during partner visits to the UK. These interactions have all contributed to keep a fluid communication among project members and partners, especially with AGA and WCN, and enabled continuous monitoring on progress and preemting potential problems.

## **5. Actions taken in response to previous reviews (if applicable)**

The only query from a reviewer concerned a point made under 'Progress towards outputs' in the previous report's review with regard to whether and what pro-action the project will take to ensure the adoption by partners of the methodologies manual. That was arguably an omission in the report rather than a reflection of our actions, since we have been very active during the compilation of the methodologies report and its subsequent distribution to encourage its widespread application.

During the biannual AGA global meeting that took place in April 2008 in Arequipa, Peru, the project leader usied the opportunity of acting as the meeting moderator to revisit this issue. In collaboration with several project members he introduced the Darwin project working strategy to the AGA delegates and showed the results obtained through our collaborative approach and the concrete benefits of standardising methodologies. Several project staff (A. Iriarte, L. Villalba, P. Perovic, M.J. Merino, M. Lucherini and J. Reppucci) have now been incorporated in the newly constituted AGA Council, with the remit of generating new global projects. A common protocol, largely based on the manual and the subsequent data analyses we have developed, has been accepted as the norm for future research by members of AGA.

## **6. Other comments on progress not covered elsewhere**

As a response to the interest showed by local partners and PA authorities we are discussing a number of follow-up actions, mainly related to the upgrade of existing protected areas, and the creation of new ones, and the involvement of local communities in the equitable sharing of any benefits these may produce. These actions would increase the effectiveness of our exit strategy on the long term conservation of biodiversity in the region. These plans may include new partners (e.g., other AGA members, GCFA, APN) and the submission of a new proposal to the Darwin Initiative and other funding sources.

## **7. Sustainability**

The remarkable growth in the cooperation of government agencies with academic institutions in host countries and the more direct involvement of local stakeholders in conservation processes would seem to indicate that our project is gaining an high profile, attracting interest on biodiversity conservation and sustainable issues in the High Andes. The resulting network of individuals and institutions interested and trained in the conservation of High Andes biodiversity is expected to outlive the project and even increase its profile in future years, through a durable effect on people's attitudes.

## **8. Dissemination**

The growing production of information and educational materials is contributing to raise awareness on the need for biodiversity conservation in the High Andes, mainly among local communities, but also amongst the general public, and the academic and political arenas, both nationally and internationally. As expected, this impact of project activities has become more visible in the last year, with the publication of scientific results, presentations at international conferences, and production of maps. Because of the multi-national approach we have adopted, our strong partnership with AGA, the efforts devoted to our educational and training components, and especially the creation of local networks of educators, PA staff, university students and researchers, it is very likely that dissemination activities will continue after the completion of the project. Project partners have already showed their interest for our participation in the development of follow-up activities and the identification of new sources to fund them.

## 9. Project Expenditure

Please expand and complete Table 3.

### Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project application)	Expenditure	Balance
Staff costs			
Consumables			
Travel and subsistence			
Printing			
Conferences, seminars etc			
Indirect Costs			
Capital items			
Others (please specify)			
<b>TOTAL</b>			

## 10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

- Presenting an example of collaborative and coordinated effort to our colleagues of the Andean Cat Alliance, presenting them with the challenge of replicating some of our activities elsewhere.
- Creation of a Network of networks, each one focalised on a different, but related issue (High Andes teachers, PA staff, Local Education Officers, Academic researchers, Biology students)
- Agreement in principle with Protected Area agencies from the three host countries to join a cooperation framework for cross-border activities.

## Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p><b>Goal:</b> <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p>Local communities and PA staff more involved in High Andes conservation. School Children attitude more favourable to biodiversity protection. Following successful technical workshop PA authorities in all three countries are working on draft of framework agreement for international cooperation.</p>	<p>Tri-national cooperation framework agreement signed by PA authorities by Dec 08.</p> <p>Development of partnerships to raise funds and implementation of upgraded PA in Argentina by Dec 08.</p>
<p><b>Purpose</b> To facilitate long-term protection of the vertebrate biodiversity of the Central Andes Puna across national frontiers, through establishment of the Andean cat as a conservation flagship, local community participation and protected area (PA) staff training.</p>	<p>New knowledge on the distribution of Andean cats and prey and identification of key conservation sites for vertebrate species. Increased local environmental awareness. Increased capacity of scientists, practitioners and PA staff to implement conservation measures and train their successors to do the same.</p>	<p>Andean cat is becoming a flagship for High Andes conservation, thanks to expansion of environmental education, research and networking activities. AGA network willing to adopt more collaborative actions and standardize data collection. More people are now aware of the need to protect High Andes natural resources and many have received training in field techniques and education tools. Unprecedented baseline data, some compatible across borders, is taking us to new level of understanding of the ecology of High Andes carnivores and their prey. Data processing and mss preparation in progress thanks to visit to the UK of partners from Chile and Argentina.</p>	<p>Complete and publish publications on Andean carnivore ecology and continue presentation of results in conferences.</p>
<p><b>Output 1.</b> Key conservation areas for Andean fauna identified.</p>	<p>Basic understanding of cat prey ecology by yr1. Mapping of Puna habitats and cat / prey distribution by yr3.</p>	<p>Various field ecology projects and wider use of standard methods have provided new data on the distribution of carnivores and their prey, and the environmental correlates. Data collation and analyses ongoing. A new revision of Andean cat and prey ecology is nearing completion, preliminary versions of the habitat suitability model have been already presented in international conferences, and will be delivered to wildlife management authorities as a mayor tool for the identification of key conservation areas by Dec 08.</p>	

Activity 1.1 Field surveys and data collection by students and project members in the 3 countries		Analyses of the bulk of data in progress, some publications have been produced, some have been submitted and more are being developed. One student thesis completed and three more are well advanced.
Activity 1.2. Training of sniffer dogs to identify Andean cats from faeces		Selection of dog handlers and sniffer dogs, field training and formal field completed. The effectiveness of selected dog is limited to laboratory conditions. Development of partnerships to seek funds for training a second dog by Oct 08.
<b>Output 2.</b> Enhancement of local community environmental awareness.	1 teacher training workshop and production of education materials by yr1. All relevant local communities & schools reached by yr 3	Education campaigns reached all relevant communities thanks to the coordinated work of project partners, students, educators, park rangers and young villagers we trained, and the Network of Educators expanded to include those we trained.
Activity 2.1. Teachers' workshops		Two workshops for educators completed.
Activity 2.2. Selection and training of local education officers		Local Education Officers trained and in duty in the three host countries.
Activity 2.3 Edition of a manual for High Andes educators		Completed and distributed among AGA members, Network of High Andes Educators and local institutions.
Activity 2.4. Education at schools and community meetings		Ongoing in the three countries.
Activity 2.5. Production of posters, banners and children storybooks		Posters and banners in display in local museum and PA visitors centre. Two storybooks produced and to be distributed widely by Oct 08.
Activity 2.6. Evaluation of education effects on attitude change		Standard evaluation completed in Argentina, shared with AGA partners and submitted for publication.
<b>Output 3.</b> Training of future local conservation biologists.	In-country training of at least 6 project members from 4 partner institutions on survey techniques by yr 1.	Monitoring manual summarises previous experience and the agreement on standard methods. Application of standard and common methods in place in the three countries.
Activity 3.1. Edition of a manual with input from project members and other AGA members		Completed and distributed among AGA members, academic institutions, local authorities and protected area staff.
Activity 3.2 Students, volunteers and protected area staff receive training in survey techniques		Ongoing in the 3 countries, under the supervision of the local project member
Activity 3.3. Supervision of Master, PhD and graduation students		Support with data analyses. One thesis completed. Next: completing other thesis, papers, and presentations to conferences.
<b>Output 4.</b> Capacity for biodiversity conservation increased through trans-frontier cooperation between protected area staff and biologists in three countries.	3 PA management and guard's training workshops by yr 2. 1 tri-national PA meeting by yr3. Agreement on a framework for communication and collaboration across frontiers.	Two international workshops provided training to PA staff and led to the first draft of cooperation agreement across frontiers.
Activity 4.1 PA management and guard's training workshop in Bolivia		Report: First Transfrontier Workshop on Andean cat conservation in protected areas Villalba L. (2006) (in Spanish)
Activity 4.2 Formal visits to PA authorities (regional and national) in Argentina		Ongoing correspondence to work on a cooperation agreement.

Activity 4.1 PA staff technical workshop in Argentina		Report: Transfrontier conservation Workshop of the Andean cat, Marino M.J. (2008) (in Spanish)
<b>Output 5.</b> Guidelines for good practice for conservation of the Puna disseminated more widely.	Local media coverage (newspapers, radio & TV), 1 training manual by yr 2, 2 peer-reviewed publications by yr 3, 1 Andean cat monitoring plan in place by yr 3.	Newsletters and manuals printed and in the process of being distributed to the various stakeholders (from local leaders and teachers to all other AGA members and the general public via websites).
Activity 5.1. Edition of training manual compiling previous experiences by biologists and educators		Printed and distributed among AGA members, academic institutions, PA agencies
Activity 5.2. Dissemination of standardized methods for collection and analysis of data during the bi-annual AGA meeting		Project UK staff and partners attended meeting and their presentation received with great interest by delegates

## Annex 2 Project Logical Framework

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources</p>			
<p>Purpose</p>			
<p>To facilitate long-term protection of the vertebrate biodiversity of the Central Andes Puna across national frontiers, through establishment of the Andean cat as a conservation flagship, local community participation and protected area (PA) staff training.</p>	<p>New knowledge on the distribution of Andean cats and prey and identification of key conservation sites for vertebrate species. Increased local environmental awareness. Increased capacity of scientists, practitioners and PA staff to implement conservation measures and train their successors to do the same.</p>	<p>Results of monitoring and GIS analysis of High Andes habitats, Andean cat &amp; prey base distribution. Records of education campaign coverage and attitude surveys. Scientific papers, technical reports, research theses and conference abstracts. Copies of publications sent to DI.</p>	<p>Local population reacts to project by reducing hunting pressure on cats and other fauna. Local communities and PA management support project activities and are prepared to incorporate future management recommendations.</p>
<p>Outputs</p>			
<p>Key conservation areas for Andean fauna identified.</p>	<p>Basic understanding of cat / prey ecology by yr1. Mapping of Puna habitats &amp; cat / prey distribution by yr3.</p>	<p>Field survey reports submitted. 3-5 theses submitted. Peer-reviewed papers submitted.</p>	<p>Andean cats limited mainly by the distribution of highland vertebrate prey. Andean cats suitable umbrella species for Puna biodiversity.</p>
<p>Enhancement of local community environmental awareness.</p>	<p>1 teacher training workshop and production of education materials by yr1. All relevant local communities &amp; schools reached by yr 3.</p>	<p>Educational materials. Participant attendance and assessment records. Results of before-after awareness survey of education campaign. Reports from community monitors.</p>	<p>Local communities, particularly children, are receptive to environmental message</p>

Training of future local conservation biologists.	In-country training of at least 6 project members from 4 partner institutions on survey techniques by yr 1.	Workshop report with monitoring guidelines booklet. Standardized field methodology applied across boundaries.	Biologists cooperate and mutually benefit from sharing previous Puna expertise.
Capacity for biodiversity conservation increased through trans-frontier cooperation between protected area staff and biologists in three countries.	3 PA management and guard's training workshops by yr 2. <b>1 tri-national PA meeting by yr3.</b> Agreement on a framework for communication and collaboration across frontiers.	Participant workshop attendance and assessment record. Report of agreement between PA managers for continuous collaboration.	Existence of common problems and solutions for Puna conservation across countries. Existence of potential synergies to be achieved through cooperation. Local stake-holders and PA staff available and motivated for training and participation.
Guidelines for good practice for conservation of the Puna disseminated more widely.	Local media coverage (newspapers, radio & TV), 1 training manual by yr 2, 2 peer-reviewed publications by yr 3, 1 Andean cat monitoring plan in place by yr 3.	Records of media coverage. Records of the distribution of publications to all relevant stakeholders.	Trans-frontier cooperation triggers communication among stakeholders.
Activities	Milestones (Summary of Project Implementation Timetable)		
Project organisation	Yr1: Project planning (Oct-Dec05)		
Workshops	Yr1: Teachers' training workshop and start implementation of education campaign (Jan-Feb06); Yr1: biologists workshop on habitat survey and monitoring skills, production of monitoring manual (Jan-Mar06); Yr2: PA staff workshops in-country (Mar-Sep06); Yr3: one tri-national workshop, agreements for future collaboration (Jan-Mar08?)		
Field research programme	Yr1-3: Field surveys by students and biologists (Apr06–Mar08); Yr2-3; data analysis, production of maps, reports and publications; Yr3: Students submit thesis, long-term Andean cat monitoring plan accorded (May-Jun08)		
Education programme	Yr1: Drafts of education material (Dec05-Jan06); Yr2: Distribution of education material (by Jan07); Yr1-3: Education campaign at local schools and community meetings		
Dissemination/publicity material	At least 1 radio broadcast and newspaper article per year in each country; project results in local & international publications and conferences (various dates); 2-3 peer-reviewed publications by July 08		

## Annex 3 onwards – supplementary material (optional)

## Annex 4

### Checklist for submission

	Check
<b>Is the report less than 5MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ectf-ed.org.uk">Darwin-Projects@ectf-ed.org.uk</a> putting the project number in the Subject line.	X
<b>Is your report more than 5MB?</b> If so, please advise <a href="mailto:Darwin-Projects@ectf-ed.org.uk">Darwin-Projects@ectf-ed.org.uk</a> that the report will be send by post on CD, putting the project number in the Subject line.	
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	YES
Have you completed the Project Expenditure table?	YES
Do not include claim forms or communications for Defra with this report.	X